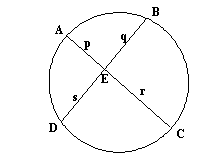
1)

There are geometric relationships among the lengths of segments when chords and secants of a circle intersect. Consider the given intersecting chords AC and BD which form the smaller lengths p,q,r and s by their intersection.

a) Draw segments AD and BC.

Name the intercepted arc for angles DBC \_\_\_\_\_\_\_\_\_\_\_\_ and

DAC\_\_\_\_\_\_\_\_\_\_\_.

What must be true about these angles? \_\_\_\_\_\_\_\_\_\_\_\_

b) Name the intercepted arc for angles ACB \_\_\_\_\_\_\_\_\_ and ADB\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What must be true about these angles?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) What must be true about triangles AED and BEC? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

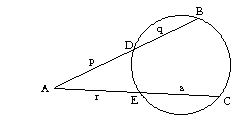
State this relationship using proper notation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

d) Use the result of part " c" to define a true relationship among lengths p,q,r and s.

e) Complete: **When chords intersect in a circle, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

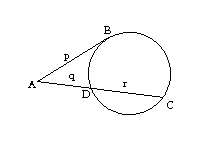
**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2)

Secant lines AB and AC intersect the given circle in such a way that they form four shorter lengths p , q , r and s. See if you can find a way to use **similar triangles** to prove a relationship among these four lengths.

**Complete: When secants to a circle intersect, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

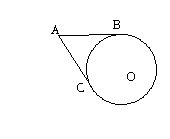


3) AB is tangent to the circle at B, and intersects secant AC so

that 3 lengths ( p , q , and r ) are formed among all of the

intersections. See if you can use similar triangles to find a

relationship among p , q and r.



4) Lines AB and AC are tangent to circle O at B and C.

a) Draw radii OB and OC (call their lengths r ) , and segment

OA (call its length h).

b) What kind of triangles are ABO and ACO? \_\_\_\_\_\_\_\_\_\_\_\_

Use this fact to find expressions for the lengths:

AB\_\_\_\_\_\_\_\_\_\_\_\_ AC\_\_\_\_\_\_\_\_\_\_\_\_\_

c) State your result as a theorem ( I call this the " snowcone theorem " ).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_